

APPLICANT(S): NAPADENSKY, Eduardo et al.
SERIAL NO.: 10/725,995
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AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled. The listing of the claims will replace all prior versions, and listing, of claims in the application.

Listing of the Claims

1. – 79. (Cancelled)

80. (Currently Amended) A method for the preparation of a multi-phase composite material having properties and structure according to intended use of said multi-phase composite material, said composite material comprising a combination of at least two types of phases or regions, each comprising a different combination of interface materials, the method comprising:

pre-designing a structure of said multi-phase composite material according to desired pre-defined properties of said composite material;

generating data for preparing the multi-phase composite material having properties and structure according to the intended use of said multi-phase composite material by combining two or more of said interface materials into at least two types of said phases or regions;

selectively dispensing said two or more interface materials, layer by layer, in liquid form from two or more corresponding dispensers according to the data generated, each interface material being dispensed from a different dispenser, to form layers corresponding to said structure, each said layer comprising one or more phases of said multi-phase composite material, each said phase comprising one or more of said materials at least two different types of phases combined according to the data generated; and

curing or solidifying said two or more materials and said second material after deposition at a controlled temperature to obtain said multi-phase composite material with desired properties and structure.

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81. (Cancelled)
82. (Currently Amended) The method according to claim 80, wherein at least one layer comprises more than one of said interface materials.
83. (Cancelled)
84. (Cancelled)
85. (Cancelled)
86. (Cancelled)
87. (Currently Amended) The method according to claim [[86]] 80, wherein said controlled temperature is higher than 25°C.
88. (Cancelled)
89. (Currently Amended) The method according to claim 80, wherein ~~a first~~ at least one phase of ~~said multi phase composite material type~~ is chemically different from a second phase type.
90. (Currently Amended) The method according to claim 80, wherein ~~a first~~ at least one phase of ~~said multi phase composite material type~~ exhibits different properties from a second phase type.
91. (Currently Amended) The method according to claim 80, wherein said at least one two of said interface materials comprise a curable component.
92. (Original) The method according to claim 91, wherein said curable component is electron beam curable, electromagnetic radiation curable, thermo-curable or any combination thereof.
93. (Currently Amended) The method according to claim 80, wherein one or more of said desired pre-defined properties change changes along a gradient, said properties property gradually increasing along an axis of said composite material.
94. (Cancelled)
95. (Previously Presented) The method according to claim 80, wherein at least one of said phases is a continuous phase.
96. (Previously Presented) The method according to claim 80, wherein at least one of said phases is a non-continuous phase.

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97. (Currently Amended) The method according to claim 80, wherein the desired properties of said multi-phase composite material are selected from the group consisting of isotropic properties, anisotropic properties or a combination thereof.

98. (Previously Presented) The method according to claim 80, wherein said desired properties are mechanical, thermo-mechanical, optical, acoustic, electrical properties or any combination thereof.

99. (Currently Amended) The method according to claim [80] 98, wherein said mechanical properties comprise mechanical strength, the mechanical strength of said composite material along one axis of said the multi-phase composite material is higher than being different to the mechanical strength of said composite material along another axis of said multi-phase composite material.

100. (Currently Amended) The method according to claim [80] 98, wherein said mechanical properties comprise elasticity, the elasticity of said composite material along one axis of said the multi-phase composite material is higher than being different to the elasticity of said composite material along another axis of said multi-phase composite material.

101. (Currently Amended) The method according to claim 80, further comprising pre-designing wherein said layer comprises a construction layer layers of a three-dimensional object.

102. (Currently Amended) The method according to claim [[80]] 101, said construction layer being used for use in the preparation of [[a]] the three-dimensional object.

103. (Cancelled)

104. (Currently Amended) The method according to claim 102 103, further comprising: producing a multiplicity of support layers for supporting said construction layers of said three-dimensional object.

105. (Previously Presented) The method according to claim 104, further comprising: producing a multiplicity of release layers for releasing said support layers, wherein said release layers are positioned between said support layers and said construction layers.

106. - 124. (Cancelled)

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125. (New) The method according to claim 80, wherein each phase comprises a multiplicity of layers.

126 (New) The method according to claim 80, wherein said properties vary along an axis of the multi-phase composite material.